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ABSTRACT

This study surveyed customer needs and the information-usage behavior in two sectors, corporate end-users and academic end-users, both using business information. Questionnaires were distributed to 198 named senior managers of a large United Kingdom energy company (97 returned) and to 595 faculty members of 11 top business schools in 9 countries (59 returned). The questionnaires were designed to probe the extent of end-user access to, and usage of, work-related information and the perceived value of such information in facilitating their work. Despite the fact that all or most of the journals required by academic respondents are available in their library and access to the peripheral sources they value is easy, 58% still feel they are missing useful information and use other available sources to try to find it; corporate end-users are in agreement, with 86% agreeing that better access to external information would improve the performance of their department. In the academic situation, a huge proportion of respondents have access both to Internet facilities and to online services provided via their library, yet usage figures for these media are quite low. Corporate resondents indicated that they are not confident of their abilities to use these media effectively and anecdotal evidence suggests that academic end-users feel similarily. Academic end-users rated journals as the most important source of information (86%); undertaking a systematic search of these journals, in printed form in their institutional library was the main method of access. Oral or informal written communication appeared to be an important source of work-related information. In contrast to the corporate sector, the academic respondents were overwhelmingly in favour of greater access to electronic information. Just as there are many differences between the needs of end-users and those of institutional buyers, so there also appears to be significant and often substantial differences in the perceived needs of different types of customers in the end-user sector. (Contains 12 references.) (AEF)

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The delivery of business information to the end-user — user perceptions and needs

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Abstract: *End-users are a rapidly growing segment of the market for academic and commercial information. Increasingly, end-users are making buying decisions — choosing the information they want, selecting delivery options and deciding on preferred payment methods. The key success factor for all parties in this value chain, from information producers and publishers to third parties delivering this information to the customer, is understanding end-user perceptions and needs with respect to sourcing and using work-related information.*
Our studies of two groups of business information end-users — in the business education and commercial sectors — have revealed interesting insights into the perceptions of these potential customers. Intriguingly, there are often marked differences in attitude between the groups, in terms of both desire for information and willingness to put effort into accessing it. These and the other key issues we have identified — attitudes to electronic delivery, ease of access versus content and perceptions regarding future requirements — have important implications for information providers undertaking product development and sales and marketing planning for this sector.

Keywords: end-user, business information, electronic publishing, Internet, market research, market segmentation, product development

1. Introduction

When Day *et al.* spelt out their customer-oriented concept of what constitutes a competitive market, they argued that people seek the benefits that products provide rather than the products *per se*, and that it is the usage requirement which dictates the benefits being sought (Ref 1). While most modern marketers would concur with this view that customer needs and requirements should be paramount when developing new products, great care is still required not to slip into the mode of technological determinism where new products are created simply because new technological advances enable their development. The need to understand the requirements of targeted users remains a very important aspect of the new product development process and is therefore an important objective of the research reported here.

We elected to survey customer needs and information-usage behaviour in two sectors, both using business information. The corporate sector's consumption of, and attitudes to, information has long been the subject of examination and the overall concept of information as an asset is familiar at company level (Refs 2, 3). In this paper we report the attitudes and understandings specifically of end-users in the corporate sector. The growth of electronic access and retrieval of information may be influencing the information-seeking and usage behaviour of these people, which in turn will affect aspects of information purchase by corporations.

We have also probed the attitudes of academic end-users who are utilising business information. Information-sourcing has always been part of academics' professional skills and traditional library work has an integrated role in the academic way of life. For this group too, though, new access and retrieval methods are changing the way things are done and other influences, notably the high price of serials and consequent reduction in library subscriptions, are giving rise to new buying patterns and demand for different product features. Whilst several recent studies have focused on academic end-users in the sciences, the area of business education may have its own attributes and characteristics (Refs 4–7). This study investigates this, and reports on these business end-user market segments and the implications for information providers.

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2. Methodology

(a) *Corporate end-users*. A questionnaire was distributed to 198 named senior managers of a large UK company in the energy sector. The questionnaire was accompanied by a covering letter from the appropriate Director, expressing support for the investigation and encouraging the managers to respond. Responses were returned to the Director's office and passed to us for evaluation. Of 198 questionnaires distributed, 97 were completed and returned (49%).

(b) *Academic end-users*. Questionnaires were sent to 595 faculty members of 11 top business schools. Nine countries were represented in the survey (Australia, Canada, Denmark, Israel, Japan, the Netherlands, South Africa, UK, USA). Of the 595, 445 were to named individuals: a covering letter explaining the nature of the research was included. Responses were received from 59 people (10%).

The questionnaires were designed to probe the extent of end-user access to, and usage of, work-related information and the perceived value of such information in facilitating their work. The questions were slightly different on the two types of questionnaire, reflecting the differences in information provision and access in the two types of workplace. Where questions contained different wording but explored comparable situations, it is made clear in the results and discussion sections below.

3. Results

3.1. Profiling

The questionnaires asked about the seniority and length of service of the respondents, and it was clear that within the corporate respondent group two discrete subgroups could be identified. The *high flyers* group comprises managers who are below the age of 35 and have already achieved relatively senior roles in the company. The implicit assumption is that reaching such high ranks at a relatively young age marks out these individuals as achievers. Eight managers fell into this category (8% of the total population). The *stable core* group comprises managers who are 46–55 years old and have reached middle to upper levels of senior management. The assumption is that, while competent, these managers are unlikely to achieve the highest management grades during the remainder of their career. Seventeen managers match this profile (18% of the total population). Where these two groups differ in response from the full population it will be a matter for discussion below. Of the academic end-users, 20 (34%) had less than 10 years service and the other 66% represented senior faculty members. There were no significant differences in responses between these two groups so for the purpose of this study all academic respondents are treated as one profile group.

3.2. Information access and usage

The first major issue was whether end-users in the two work environments have access to the information they want. Despite the fact that all or most of the journals required by academic respondents are available in their library (76% agreed with this statement) and access to the peripheral sources they value is easy, 58% still feel they are missing useful information and use other available sources to try to find it. Corporate end-users are in agreement, with 86% agreeing that better access to external information would improve the performance of their department. The high flyers show a particularly strong agreement with this statement. This response should be appraised with caution, however, since there seems to be a discrepancy between access and use, at least in some cases. For example, where managers have access to information on CD-ROM, less than half actually use it. Conventional online- and Internet-delivered information follows the same pattern. In the academic situation, too, a huge proportion of respondents have access both to Internet facilities (in addition to e-mail, which is used by all respondents) and to online services provided via their library, yet usage figures for these media are quite low. Our corporate respondents indicated that they are not confident of their abilities to use these media effectively and anecdotal evidence suggests that academic end-users feel similarly.

We also asked respondents to rank the sources of information according to importance. Unsurprisingly, academic end-users rated journals as the most important source of information (86%): undertaking a systematic search of these journals, in printed form, in their institutional library was the main method of access. Thirty six percent of respondents in this category also considered browsing through printed journals in their library to be extremely or very important to them. Fifteen percent report accessing primary journal information electronically in their library. Local access (in their office) is also high, with 49% having personal subscriptions to at least one journal and 44% having access to (and using) departmental copies. Secondary information (abstracting and indexing services) is rated highly in importance, with 51% using these services in print and an even higher percentage (58%) using them on CD-ROM in their libraries. CD-ROM is also a popular medium in the local environment for secondary information (31%); the usage of electronic media is discussed separately below. Secondary information in print is used locally by 34% of respondents (Table 1).

Table 1: Types of information rated extremely or very important for their work by academic respondents. The figures refer to percentages of total respondents.

Information usage by academic respondents		
Information type		**%**
Primary journals:	systematic library search	86
	library browsing	31
	personal copies	49
	department copies	44
	colleagues' copies	24
	online from own desk	15
Secondary info:	library print copies	51
	library CD-ROMs	58
	library diskettes	15
	library online	20
	print at own desk	34
	CD at own desk	31
	diskette at own desk	14
	online host from own desk	12
	online to library service	51
Inter-library loans		75
Authors' reprints		14
Other libraries		32
General informal		76
Conferences and meetings		41
Other sources:	newspapers, magazines (usage)	76
	broadscope journals (usage)	66
	trade magazines (usage)	54
	TV/radio (usage)	53
	Internet newsgroups (usage)	31
	rated as highly important by	58

Whilst more peripheral sources (newspapers, trade magazines and broad-scope publications) are ranked extremely or very important by a large proportion (58%) of academic end-users, they are given top ranking by 94% of corporate personnel. This group also ranked what we termed word of mouth information as their second most important category of information (see below), with journals in third place (Table 2). When asked which they considered to be most accurate and reliable, however, journals win the overall vote, though the high flyers subgroup rate consultancy most highly.

Table 2: Information usage by corporate respondents. The first column of figures shows the responses to the question 'In terms of the sort of information you require for the normal performance of your duties, which of the following external information sources do you have access to?' Figures refer to the percentage of total respondents. The right-hand column shows these sources, ranked according to importance, when respondents were asked which they actually used.

Information type	Access to information type (%)	Ranking (% giving this rank)
Newspapers and magazines	96	1 (94)
Journals	92	2 (91)
General informal	87	3 (84)
Conferences and meetings	90	4 (84)
TV/radio	83	5 (65)
Consultancy	58	6 (58)
Company reports	65	7 (52)
Market reports	56	8 (48)
Abstracts	53	9 (44)
Online	37	10 (25)
Electronic bulletin boards	37	11 (23)
E-mail	15	12 (10)
CD-ROM	11	13 (5)
Internet	4	13 (5)
Microfiche	4	14 (2)

3.3. Informal or oral communication

Oral or informal written communication (we termed this 'word of mouth' in our questionnaire) does seem to have a high weighting as an important source of work-related information. Under this category, the *corporate high flyers* rate conferences the most useful type of information source while the stable core group selected general informal communication channels. The high flyers also gave a very high rating for accuracy and reliability to consultancy. Seventy six percent of academic end-users also say that general informal communication is extremely or very important, and 41% of them rate conferences, meetings, seminars and other informal communications with non-local colleagues in the same way.

3.4. Electronic information

The questions asked about in this section were designed specifically to examine the attitudes of managers and academics towards the use of electronic information products, and whether they have the skills necessary to use such products.

One hundred percent of academic end-users have an e-mail facility, 88% have access to other Internet services as well and 80% have access to online information sources via links to their library. A small proportion (15%) actually use the latter to access primary information and 12% access secondary information (abstracting and indexing services) this way. Twenty percent access online services from their library itself (this may be with help from an information professional). The biggest category of electronic information usage was for secondary information provided on CD-ROM in their library (58%) closely followed by accessing this information via a link from their desk to their library: 51% of respondents use such a service (Table 3).

Table 3: Internet usage by academic respondents. Figures give percentages of respondents in each category.

Access to and usage of the Internet (% academic respondents)	
Access available	88
Primary journals accessed via the Internet	20
Secondary information accessed via the Internet	19
Would like information delivered via the Internet	98
Would expect institution to pay for information delivered via the Internet	98

Electronic information usage in the corporate sector differs in detail but is equally diverse. Access to online databases, the Internet and CD-ROM products is seen as a major source of competitive advantage by 66% of the full population of respondents, though the high flyers tended to agree rather than strongly agree with this statement. A follow-up question asked whether respondents felt they could use these electronic resources effectively: the answers showed conclusively that managers do not feel confident in their abilities in this area. The 'no' category was ranked first in every case, with a few respondents opting for the 'somewhat' category (Table 4). In the case of online databases, technology that has been available to this sector for a number of years, confidence was generally higher than for CD-ROM and the Internet. A fair proportion (38% of the high flyers and 27% of the full population) selected the 'somewhat' category for this medium.

Table 4: Corporate respondents' perceptions of their ability to use electronic information sources. Figures give percentages of total respondents.

Ability to use electronic information sources (% corporate respondents)			
	Yes	**Somewhat**	**No**
CD-ROM		16	71
Online		27	49
Internet		20	67

Finally, and in contrast to the above findings in the corporate sector, the academic respondents were overwhelmingly in favour of greater access to electronic information. Ninety eight percent of them would like work-related information provided via the Internet: the same proportion expected their institution (library or department) to pay for information delivered by this channel. This is interesting in the light of our findings regarding personal subscriptions to printed information sources given above (see Discussion below).

3.5. Information purchase

We asked the academic respondents to indicate how many personal subscriptions they had to journals in print and the results are shown in Table 5. Forty six of these are paid for by the individual concerned and 36% are purchased using departmental funds. Thirty six percent of respondents have been put off taking out a personal subscription by difficulties in the payment process.

Table 5: Information purchase patterns by academic end-users. Figures refer to percentage of total respondents in each category.

Information purchase by academic respondents	
Number of personal subscriptions:	
0	19
1	15
2	15
3	17
4	7
>4	27
Payment method:	
self	46
department	36
grant	7
share with colleagues	2
Respondents who have been put off a personal purchase by subscription difficulties	36

4. Discussion

In both academic and commercial environments, information which is relevant, accurate and timely is one of an organisation's chief assets. In both situations, too, the main drivers of change are the price of information and technological developments affecting available methods of delivery. Publishers seeking to maximise opportunities in the business information market have two main strategic pathways open to them. The first is to develop new markets, and the most attractive option in this respect is the end-user sector which has been largely untapped except by publishers of broad-scope and consumer-type information. The second is to develop new products: under this heading electronically published information, which leverages traditional publishing strengths with the power of new technology, appears to be an avenue to business success.

We undertook this survey in order to probe more deeply into end-user perceptions and attitudes with regard to accessing and using information for their work, with the aim of drawing conclusions which pertain to the way publishers may develop their business in these markets in the future.

The academic respondents acknowledge that their libraries provide access to the majority of learned journals they require, but more than half the respondents still feel they are missing information which would be useful. Broad-scope and other peripheral information sources are searched out and channels such as inter-library loan, other libraries or authors' reprints are commonly used. This desire for more access to useful information was echoed by our corporate respondents, who were emphatic that better access to information would improve performance.

Anecdotal comments on the returned questionnaires indicate some level of anxiety on this topic, with respondents declaring their willingness to employ all channels to get to useful information; their main problem is awareness of its existence in the first place. Clearly, they perceive an important gap here between information available somewhere and their awareness of that fact. Additionally, the issue of 'information overload' does not seem to pertain in the situations examined here: both managers and academics appear eager to access and use as much information as possible (Refs 8, 9).

When questioned specifically about their attitude to information delivered electronically, both groups responded positively. The corporate respondents agreed that greater access to these sources would be a major source of competitive advantage while academics overwhelmingly agreed that to be able to access the information they needed via the Internet would be advantageous to their work in the future. These responses are made emphatically despite the fact that these services are already available in many cases. Although there is a palpable growth in interest in using the Internet in corporate situations (Ref 10), a large proportion of our corporate respondents indicated they currently do not use this medium to any extent. Since end-users are keen to take advantage

of new electronic delivery methods but are not actually employing them when they are available, we suggest the existence of a training gap in this area. This is borne out by our findings that the corporate respondents admit they cannot use electronic media effectively. Publishers may capitalise on this and drive the market forward by providing simple-to-use electronic products which overcome the difficulties and incompatibilities of present offerings.

Another issue with respect to electronic delivery concerns the use of what we termed broad-scope and peripheral information. This category is very important to both academic and corporate end-users, with both groups consulting newspapers and magazines for work-related information. Whilst at present these are still almost all used in print, the availability of such publications on the World Wide Web is growing fast, with most of the world's major broadsheet newspapers and a significant proportion of specialist and trade magazines fast establishing a presence. The opportunity for librarians to add value to these services is also being exploited (Ref 11). Increasing familiarity with these electronic products, provided in the Web's open environment, will serve to push end-users rapidly up the learning curve in electronic access and retrieval, and should provide the opportunity for publishers of other types of business information to capitalise on the advantages of Web publishing.

The importance of informal communication should not be surprising in the light of previous findings on this topic. A Royal Society survey of information usage in science, technology and medicine in the UK found that personal contact was used for information by 97% of respondents, and two recent studies of biological researchers found that discussion with colleagues or conferences was used to gather information by up to 95% of respondents (Refs 4, 9, 12). The high rating for consultancy by the corporate high flyers took us slightly by surprise, but presumably in a work environment with severe time pressures the traditional role of consultants in distilling, synthesising, researching and interpreting information for subsequent managerial use becomes invaluable.

Finally we raise the issue of purchase decision-making. In the academic environment it is clear that while major spending decisions are still a matter for library budgets, individuals are taking advantage of special rates for print subscriptions and there would seem to be little reason to suppose that a similar take-up would not be found for electronically-delivered information if priced correctly. Publishers should note, however, that a sizeable proportion of respondents declared that they had been put off a personal subscription purchase by insurmountable difficulties in the payment process (we asked if they had actually been put off the purchase rather than just whether they had experienced difficulties). Efficient and straightforward subscribing procedures must be in place if publishers are to capitalise on end-users' readiness to pay themselves for work-related information.

The Internet rather confounds this issue. In answer to our questions about electronic access via the Internet, all respondents who indicated that they would like to receive their information this way also stated that they would expect this information to be paid for by their institution. It seems that Internet-delivered information is perceived as 'institutionally-provided', on a par with information delivered to libraries on tape or CD-ROM and networked campus-wide, and probably reinforced by the runaway success of services such as BIDS (Bath Information and Data Services). A recent survey of academic end-users in biomedicine by one of us (APS) found that such services, where information is free-at-the-point-of-use but purchased via one decision by the librarian, constitute an increasingly popular category of information accessed by end-users (Ref 12). The growth of such services, especially when provided by intermediaries, is clearly of fundamental importance to publishers, encompassing as it does such issues as the pricing of networked electronic products and the scope for publisher-developed product features to give a sustainable competitive advantage.

In conclusion, we see servicing the end-user market as a huge opportunity for publishers and one which is currently hardly exploited at all in the sectors we studied. Clearly, though, just as there are many differences between the needs of end-users and those of institutional buyers, so there also appears to be significant and often substantial differences in the perceived needs of different types of customers in the end-user sector. Careful segmentation of this market will be necessary if it is to be served efficiently and profitably.

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